CDF Operations

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All Experimenters' Meeting

Store Summary (01/31–02/07)

Store	Start Date	Duration (hours)	Initial Instantaneous Luminosity (10^{30} cm^{-2}s^{-1})	Delivered Integrated Luminosity (nb^{-1})	Live Integrated Luminosity (nb^{-1})
3953	01/31	27.5	92.5	3662.2	3024.2 82.6%
3956	02/01	32.8	104.6	4410.8	3571.1 81.0%
3958	02/03	1.5	114.2	550.7	268.8 48.8%
3962	02/04	24.8	70.2	2986.2	2429.8 81.4%
3968	02/06	19.0	45.1	1728.6	1246.6 72.1%
3969	02/06	12.1	70.7	1909.1	1512.4 79.2%
Total 3953-3969		117.7		15247.6	12052.9 79.0%

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- Difficult trigger problems being resolved
  - VRBs (data concentrators) take data from multiple front-end crates. Multiple VRBs in a crate send data through the crate's SCPU (scanner CPU) to ATM switch and then EVB (event builder) for assembly into full-blown events
  - This is downstream of L1 and L2 decision. Any logjam here results in "busy" deadtime. Problems we were seeing were large total deadtimes with a large fraction (up to 90%) due to "busy" deadtime.
  - Problem appears to be due to problem in VRB crate. After swapping VRBs and power cycling crate, deadtime decreased. After swapping out SCPU, deadtime may be normal. At $\mathcal{L}=1.13\times10^{32}$, initial deadtime was 25% and L3 rate was 400 Hz, as good as before problems started. Appears to be SCPU was taking longer to read out, but need to pinpoint source of problem.
  - In process of debugging, developed more detailed diagnostics for VRBs, SCPUs, EVB, and L3. Will become part of routine monitoring.
  - Now can get back to working on trigger budget to be ready for higher luminosities.

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- "CSL pointer space"
  - Change in number of trigger bits has to be implemented in hardware EVB, software (calibration) EVB, CSL (consumer server logger), online consumer code, offline production code, online calibration consumer code. Latter was last step preventing implementation.
  - In process of updating online calibration consumers, rebuilt many that were very old since last build. Tested all calibrations through to calibration DB and histograms.
  - Next big push for new TDC DSP code and data format for faster readout time.
- Efficiency (~80%) larger than we would like:
  - Still taking many test runs
  - Larger rate of muon arch "miniskirt" trips–perhaps due to water spill on chambers
  - Larger rate of beam loss related problems (our guess)—HV power supply μP problems (SVX and plug), FRAM contents scrambled (shower max), and COT TDC problems, despite beam losses near beampipe
  - Many runs adds downtime due to 5–10 minute run initialization

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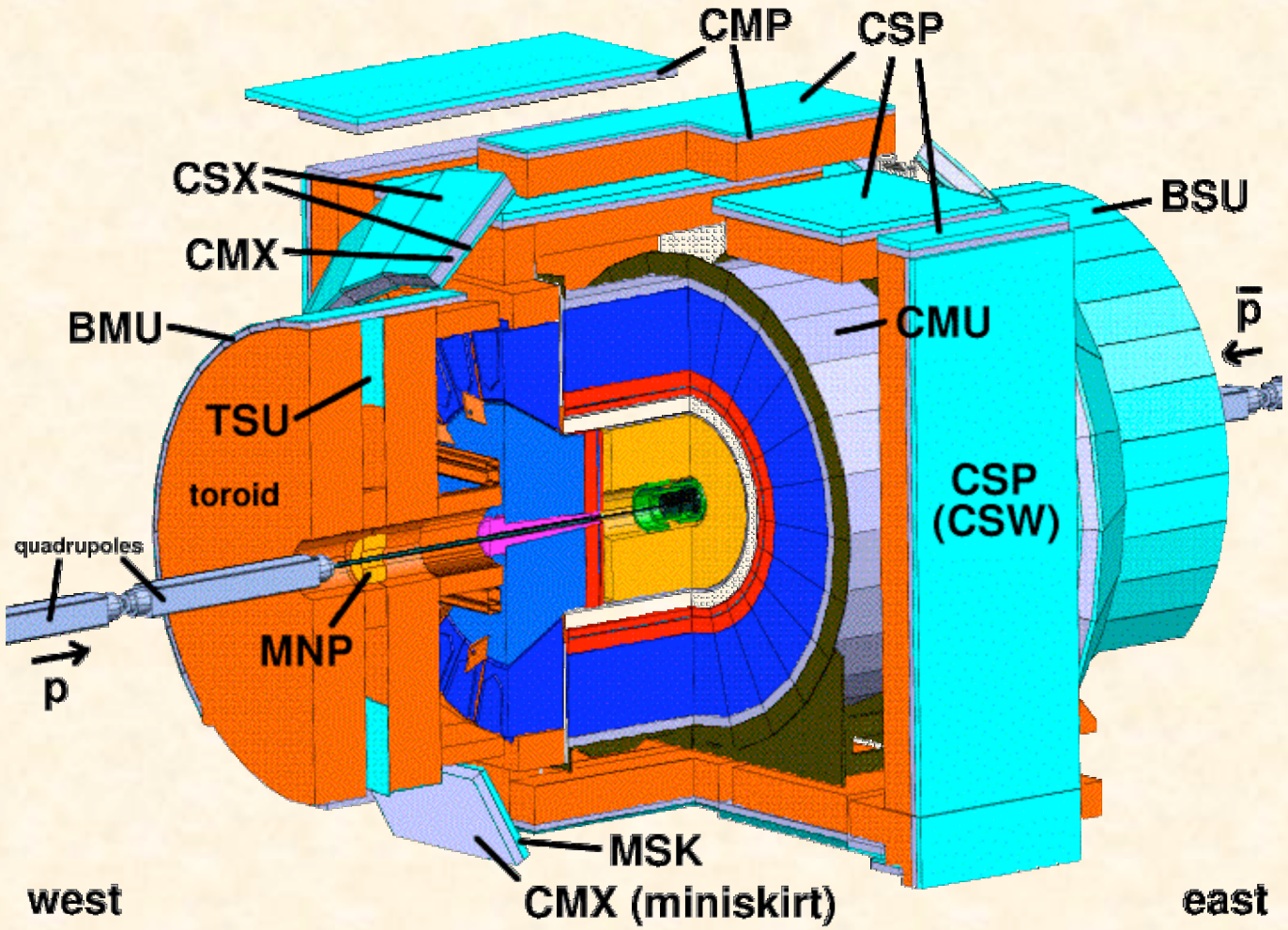
- Store 3953 (Monday)
  - Deadtime at worst 18% after F. Chlebana swaps VRB14 before this run
- Store 3956 (Tuesday)
  - Long run 193111 (2.11 nb-1) marked bad due to SMX LUT table failure (beam losses?) at end; definite candidate for recovering much data with run sections
  - Replaced SW CEM Gamma HV bulk power supply with new Gamma–drifting 5-10 V continuously
- Store 3958 (Thursday)
  - Short store due to quench
  - Initial deadtime at $\mathcal{L}=1.13\times10^{32}$ is 25% with L3 trigger rate of 400 Hz—good!
- Store 3962 (Friday)
  - One SVX ladder removed–ladder previously known to give problems
  - SVX D-mode calibration
- Store 3968 (Sunday)
  - SVT board replaced after 2 hours downtime
  - Pulsar tests at end of store
- Store 3969 (Sunday)
  - COT TDC crate needs expert help to recover

CDF Run IIB Detector



CDF Run IIB Detector (inner)